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(54) Abstract Title
Telescopic shaft for clubs

(57) A telescopic shaft for a club or mallet comprises a hollow upper handle section 1, a hollow tapered middle shaft section 2 and a tapered lower shaft section 3, the joint between the upper and middle sections comprising an external threaded sleeve 25, exterior thread 10 on the lower portion of the upper section and an internally mounted expanding joint 21. The lower shaft section has a shape that resists rotation when it is placed in the socket 20 of complementary shape mounted on the lower end of the middle shaft section - for example the shape may be profiled with splines. The lower joint is also reinforced by a sleeve 26.

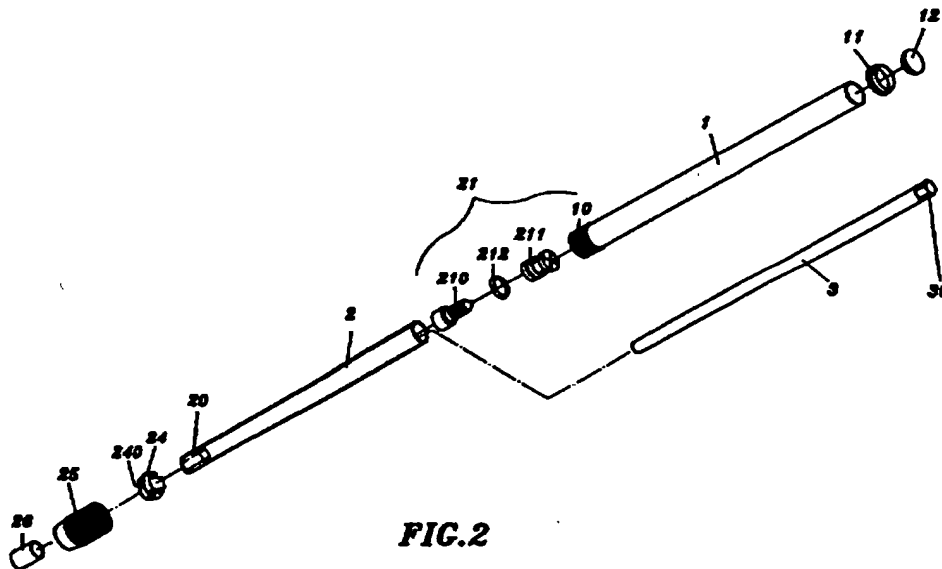


FIG. 2

GB 2 331 464 A

Improved Club

The present invention relates to a club, more particularly, to an improved club in which the overall length of the club can be readily and conveniently adjusted according to the height of the user. On the other hand, the club can be readily retracted to reduce the overall length when stored.

The club for golf or the like is integrally formed. This club suffers a bulky dimension and the club can be retracted to reduce its overall length when it is stored. Accordingly, it is really not convenient for the user to keep or bring it. Furthermore, as the length of the club is fixed, it can not be adjusted to meet different requirements from different users.

There is some clubs that can be disassembled when not in use. However, different parts are engaged by means of inner/outer threaded portions. The threaded engagement has some defects. Firstly, it takes time in screwing. Secondly, the overall rigidity or strength is reduced, as the threaded portions tend to loose. If those different parts are not firmly engaged, the club can not accurately hit the ball.

The present invention provides an improved club of the type that includes a main rod 1, an auxiliary rod 2, and an

extension rod 3. The engagement between the main rod 1 and the auxiliary rod 2 is facilitated by the threaded collar 11 of the main rod 1 and the threaded sleeve 25 of the auxiliary rod 2. One end of the auxiliary rod 2 is provided with a fastening collar 24 and an expanding socket 21. By the axial movement of the threaded sleeve 25 and the auxiliary rod 2, the length of the auxiliary rod 2 can be adjusted. On the other hand, the junction between the auxiliary rod 2 and the extension rod 3 is provided with zigzag or taper or polygonal shape end with which the extension rod 3 can be fixedly adjusted respect to the auxiliary rod 2. By this arrangement, the overall length of the club can be readily and conveniently adjusted according to the height of the user. On the other hand, when the club is not in use, the main rod 1, auxiliary rod 2, and the extension rod 3 can be readily retracted to each other to reduce the overall length when not in use.

The present invention will now be described by way of example with reference of the annexed drawings, in which:

20 Figure 1 is a perspective view of the present invention;

 Figure 2 is an exploded view of the present invention;

25 Figure 3 is an exploded view of the expanding socket;

 Figure 4 is a partial, cross sectional view of the

present invention;

Figure 5 is a cross sectional view of the junction between the auxiliary rod and the extension rod;

Figure 6 is a schematic illustration showing the use
5 of the club made according to the present invention;

Figure 7 is another schematic illustration showing the use of the club made according to the present invention;

Figure 8 is a perspective view showing the main rod, auxiliary rod, and the extension rod are retracted respect to
10 each other to reduce the overall length;

Figure 9 is an exploded view of a second embodiment of the expanding socket;

Figure 10 is an exploded view of a second embodiment of the extension rod;

15 Figure 11 is a cross sectional view of a second embodiment of the extension rod;

Figure 12 is an exploded view of a second embodiment of the extension rod; and

20 Figure 13 is a cross sectional view of a second embodiment of the extension rod.

The present invention relates to a club, more particularly, to an improved club in which the overall length of the club can be readily and conveniently adjusted according to
25 the height of the user. On the other hand, the club can be readily retracted to reduce the overall length when stored.

It is still the objective of this invention to provide an improved club to solve the problem encountered by the prior art.

5

It is still the objective of this invention to provide an improved club that can be readily adjusted for its length to meet different requirements from different user. The improved club features an enhanced rigidity and stability.

10 The improved club can be shortened when not in use.

Referring to Figures 1 and 2, the present invention provides an improved club of the type that includes a main rod 1, an auxiliary rod 2, and an extension rod 3. The front end of the main rod 1 is provided with a threaded collar 11 and an end cap 12 is disposed at the rear end of the main rod 1. The auxiliary rod 2 is telescopically disposed within the main rod 1 from the front end. The auxiliary rod 2 has a taper configuration and a positioning portion 20 that has a hexagonal shape. The rear end of the auxiliary rod 2 includes an expanding socket 21 that is configured by a screw head 210, an expanding portion 211, and a protecting ring 212. The screw head 210 of the expanding socket 21 is fixedly disposed on the auxiliary rod 2. The expanding portion 211 includes a plurality of grooves 213, as shown in Figure 3. The protecting collar 212 is enveloped onto the expanding portion

211. The expanding portion 211 can be protected from collapsing when the screw head 210. After the screw head 210 is inserted into the expanding portion 211, this sub-assembly is inserted into the main rod 1.

5

When the auxiliary rod 2 is rotated such that the screw head 210 is moved axially toward the expanding portion 211, the expanding portion 211 is expanded and grasped toward the inner wall of the main rod 1. As a result, the auxiliary rod 10 2 is positioned respect to the main rod 1. On the other hand, the front end of the auxiliary rod 2 is disposed with a fastening collar 24 and a threaded sleeve 25 orderly. The fastening collar 24 is disposed within the threaded sleeve 25 and the fastening collar 24 is provided with a plurality of grooves 240. 15 The inner wall of the threaded sleeve 25 includes a taper surface 250, as shown in Figure 4. The threaded sleeve 25 can engage with the threaded portion 10 of the main rod 1 and further engages with the threaded collar 11 of the main rod 1. As a result, the threaded sleeve 25 is firmly engaged with the 20 threaded collar 11. When the threaded sleeve 25 is rotated, the threaded collar 11 is also rotated simultaneously. By this arrangement, the threaded sleeve 25 will not separate from the main rod 1 and the main rod 1 and the auxiliary rod 2 can be connected.

25

When the threaded sleeve 25 is rotated and moved to

the threaded portion 10 of the main rod 1, the fastening collar 24 will be squeezed by the taper surface 250 of the threaded sleeve 25 and the auxiliary rod 2 will be firmly positioned. The front portion of the auxiliary rod 2 is further fixedly
5 mounted with a protecting sleeve 26 to increase the overall rigidity.

The extension rod 3 is telescopically disposed at the front end of the auxiliary rod 2 and can be completely retracted
10 into the auxiliary rod 2 when not in use. Again the extension rod 3 has a taper configuration. The extension rod 3 includes a connecting portion 30 that can be fixedly fitted with the positioning portion 20 of the auxiliary rod 2. The connection portion 30 has a hexagonal shape also, as shown in Figure 5.
15 Accordingly, when the extension rod 3 is fully extended, it may receive firm support from the auxiliary rod 2.

From the forgoing description, an improved club suitable for golf is formed, as clearly shown in Figures 6 and 7.
20 In use, the threaded sleeve 25 can be loosed such that the fastening collar 24 is released from the taper surface 250 of the threaded sleeve 25. As a result, the auxiliary rod 2 is free to move. Then the auxiliary rod 2 can be rotated such that the screw head 210 is moved away from the expanding portion 211.
25 In this case, the expanding portion 211 is disengaged with the inner wall of the main rod 1. Then the auxiliary rod 2 is free

to move inward or outward with respect to the main rod 1.

On the other hand, the extension rod 3 can be pulled outward with respect to the auxiliary rod 2. Then the
5 connecting portion 30 of the extension rod 3 can be engaged with the positioning portion 20 of the auxiliary rod 2. When the extension rod 3 is pulled outward, it can be automatically locked with the auxiliary rod 2 since both have the taper configuration. Because the junction between the auxiliary
10 rod 2 and the extension rod 3 has a hexagonal shape, the extension rod 3 will not rotate with respect to the auxiliary rod 2. In light of this, the user may readily hit the ball with the golf head. A better result can be therefore attained.

15 On the other hand, the direction of the thread of the screw head 210 is designed to opposite to the golf head attached to the lower end of the improved club. Accordingly, the more the shut, the more stronger the engagement between the auxiliary rod 2 and the main rod 1. By this arrangement,
20 the hitting performance will not be influenced by the loosened engagement between the auxiliary rod 2 and the main rod 1.

When the club is not in use, the extension rod 3 can be directly pushed into the auxiliary rod 2. Then the threaded
25 sleeve 25 is loosened firstly, and then the auxiliary rod 2 is rotated such that the expanding portion 211 will not grasp to

the inner wall of the main rod 1. Consequently, the auxiliary rod 2 can be completely retracted into the main rod 1, as shown in Figure 8. By this arrangement, the overall length of the club when it is stored is just one third of the actual length in use. This compact dimension is readily suitable for carrying and storing. Besides, the extension rod 3 can be designed to have several sections.

As shown in Figure 9, a second embodiment of the improved club is disclosed. The auxiliary rod 2 includes an expanding socket 4 at rear end. The expanding socket 4 is configured with a fixing socket 40, an expanding element 41, a pressing element 42, and a locking bolt 43. The fixing socket 40 is provided with a threaded hole 400 at central portion.

The fixing socket 40 is disposed at the rear end of the auxiliary rod 2. The expanding element 41 is provided with a through hole 410 and a plurality of grooves 411 is passed through the through hole 410. The expanding element 41 is provided with an inclined surface 412 at one side. The pressing body 42 is provided with a threaded hole 420 at center. The pressing body 42 is further provided with an inclined surface 421 corresponding to the inclined surface 412 of the expanding element 41. The locking bolt 43 is firmly locked to the pressing element 42 and reaches to the expanding element 41.

Finally, the locking bolt 43 reaches and engages with the fixing socket 40 of the auxiliary rod 2. The sub-assembly

configured by the expanding socket 4 and the auxiliary 4 can be inserted into the main rod 1.

When the auxiliary rod 2 is rotated and the locking
5 bolt 43 is moved toward the fixing socket 40, the pressing
element 42 could be moved to press the expanding element 41.
As a result, the inclined surfaces 421 and 412 will be meshed
with each other. As the expanding element 41 is pressed by
the pressing element 42, the expanding element 41 will be
10 expanded and grasped to the inner wall of the main rod 1.
Consequently, the auxiliary rod 2 is positioned with the main
rod 1.

Besides, the connecting portion 30 of the extension
15 rod 3 can be also designed to have a zigzag shape, as shown in
Figures 10 and 11. In an alternative, it can be also embodied
with a tapering means, as shown in Figures 12 and 13. Both
can make the extension rod 3 be positioned with respect to the
auxiliary rod 2.

20

While particular embodiment of the present
invention has been illustrated and described, it would be
obvious to those skilled in the art that various other changes
and modifications can be made without departing from the
25 spirit and scope of the invention. It is therefore intended to
cover in the appended claims all such changes and

modifications that are within the scope of the present invention.

I Claim:

1. An improved club of the type that includes a main rod 1, an auxiliary rod 2, and an extension rod 3, characterized in that

5 said main rod 1 that has a hollow configuration is enveloped with a threaded collar 11 and a threaded portion 10 at front end, said auxiliary rod 2 being disposed at the front end of the main rod 1 and capable of being completely received within said main rod 1, said auxiliary rod 2 having a taper and
10 hollow configuration, one end of said auxiliary rod 2 being mounted with an expanding socket 21 and the sub-assembly configured by said expanding socket 21 and said auxiliary rod 2 being disposed within said main rod 1, said auxiliary rod 2 being enveloped with a fastening collar 24 and a threaded
15 sleeve 25 and said fastening collar 24 being disposed within said threaded sleeve 25, said threaded sleeve 25 being provided with taper surface 250 and being capable of engaging with said threaded portion 10 of said main rod 1 and locked with said threaded collar 11 such that said auxiliary rod 2 and said main
20 rod 1 can be connected, said auxiliary rod 2 being provided with a positioning portion 20 at the front end and a protecting sleeve 26 at front end to increase the overall rigidity, said extension rod 3 being disposed at front end of said auxiliary rod 2 and being capable of completely received within said
25 auxiliary rod 2, said extension rod 3 having a taper configuration and having a connecting portion 30 at front end

such that said auxiliary rod 2 and said extension rod 3 are firmly engaged;

wherein when the club head or the likes is attached to the lower end of said extension rod 3, the overall length of said improved club can be readily adjusted to meet the requirements of the user, the engagement between each of said rods is durable and reliable to provide a better hitting performance, when said improved club is not in use, said rods can be readily retracted to reduce the overall size for carrying and storing.

2. An improved club as recited in claim 1, said expanding socket 21 of said auxiliary rod 2 is configured by a screw head 210, an expanding portion 211, and a protecting ring 212, said screw head 210 of said expanding socket 21 is fixedly disposed on said auxiliary rod 2, said protecting collar 212 is enveloped onto said expanding portion 211 such that said expanding portion 211 can be protected from collapsing when said screw head 210 is moved into said expanding portion 211.

3. An improved club as recited in claim 1, said expanding socket 4 is configured with a fixing socket 40, a expanding element 41, a pressing element 42, and a locking bolt 43 to position said auxiliary rod 2 with respect to said main rod 1.

4. An improved club as recited in claim 1, wherein said positioning portion 20 of said auxiliary rod 2 can be embodied with a zigzag shape or a taper means, while said connecting portion 30 of said extension rod 3 is also embodied with a
5 zigzag shape or a taper means to relative positioning therebetween.

5. An improved club substantially as hereinbefore described with reference to the accompanying drawings of
10 Figures 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13.

Amendments to the claims have been filed as follows

1. A telescopic shaft for a golf club, the shaft including a hollow upper handle section, a hollow tapered middle shaft section, and a tapered lower shaft section, wherein, said upper handle section is encircled by a threaded collar and has a threaded portion at a lower end, said middle shaft section is disposed at the lower end of the upper handle section and is capable of being completely received within said upper handle section, one end of said middle shaft section is mounted with an expanding plug and a sub-assembly configured by said expanding plug and said middle shaft section is disposable within said upper handle section, said middle shaft being encircled with a fastening collar and a threaded sleeve and said fastening collar being disposable within said threaded sleeve, said threaded sleeve being provided with a taper surface and being capable of engaging with said threaded portion of said upper handle section and locked with said threaded collar such that said middle shaft section and said upper handle section can be connected, said middle shaft section being provided with a positioning portion at a lower end and a protecting sleeve at the lower end to increase the overall rigidity, said lower shaft section being disposable at a lower end of said middle shaft section and being capable of being completely received within said middle shaft section, said lower shaft section having a connecting portion at an upper end such that said middle shaft section and said lower shaft section are firmly engagable;

such that the overall length of said club shaft can be readily adjusted, the engagement between each of said sections is durable and reliable and said sections can be readily retracted to reduce the overall size of the shaft for carrying and storing.

5

2. A telescopic shaft as claimed in claim 1, wherein said expanding plug of said middle shaft section comprises a screw head, an expanding portion, and a protecting ring, said screw head of said expanding plug is fixedly disposed on said middle shaft section, said protecting collar encircles said expanding portion
10 such that said expanding portion can be protected from collapsing when said screw head is moved into said expanding portion.

3. A telescopic shaft as claimed in claim 1, wherein said expanding plug comprises a fixing element, an expanding element, a pressing element, and a
15 locking bolt to position said middle shaft section with respect to said upper handle section.

4. A telescopic shaft as claimed in claim 1, wherein said positioning portion of said middle shaft section is embodied with a zigzag shape or a taper means,
20 and said connecting portion of said extension rod is also embodied with a zigzag shape or a taper means for relative positioning therebetween.

5. A telescopic shaft for a golf club substantially as hereinbefore described with reference to the accompanying drawings.



Application No: GB 9724728.2
Claims searched: 1 to 5

Examiner: Alan Blunt
Date of search: 24 February 1998

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.P): A6D (DHB2, DHX, D24)

Int Cl (Ed.6): A63B 53/00, 53/12, 53/14, 53/16

Other:

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
A	US4664382 (PALMER)	1
A	US3891212 (HILL)	1
A	US3524646 (WHEELER)	1

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

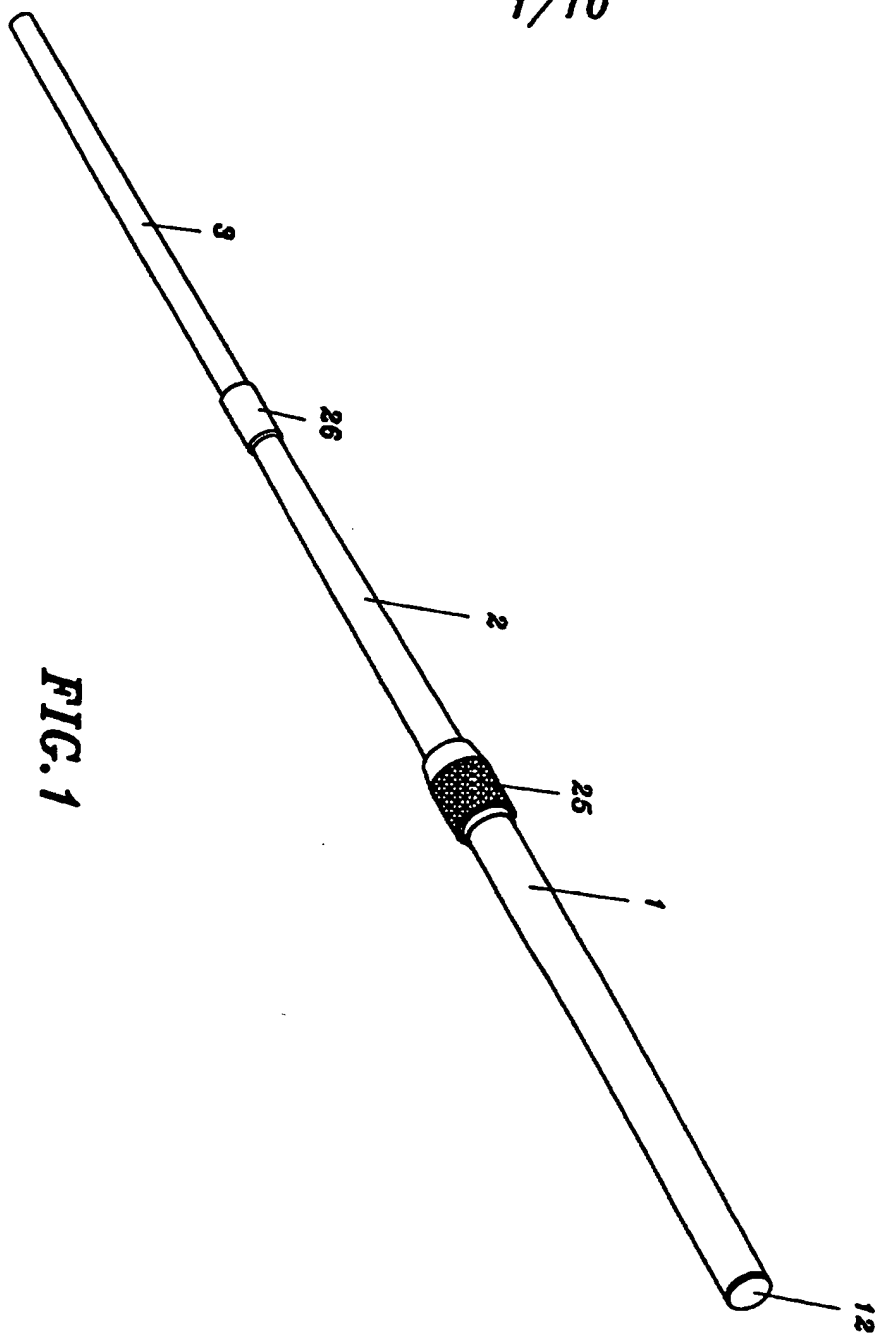
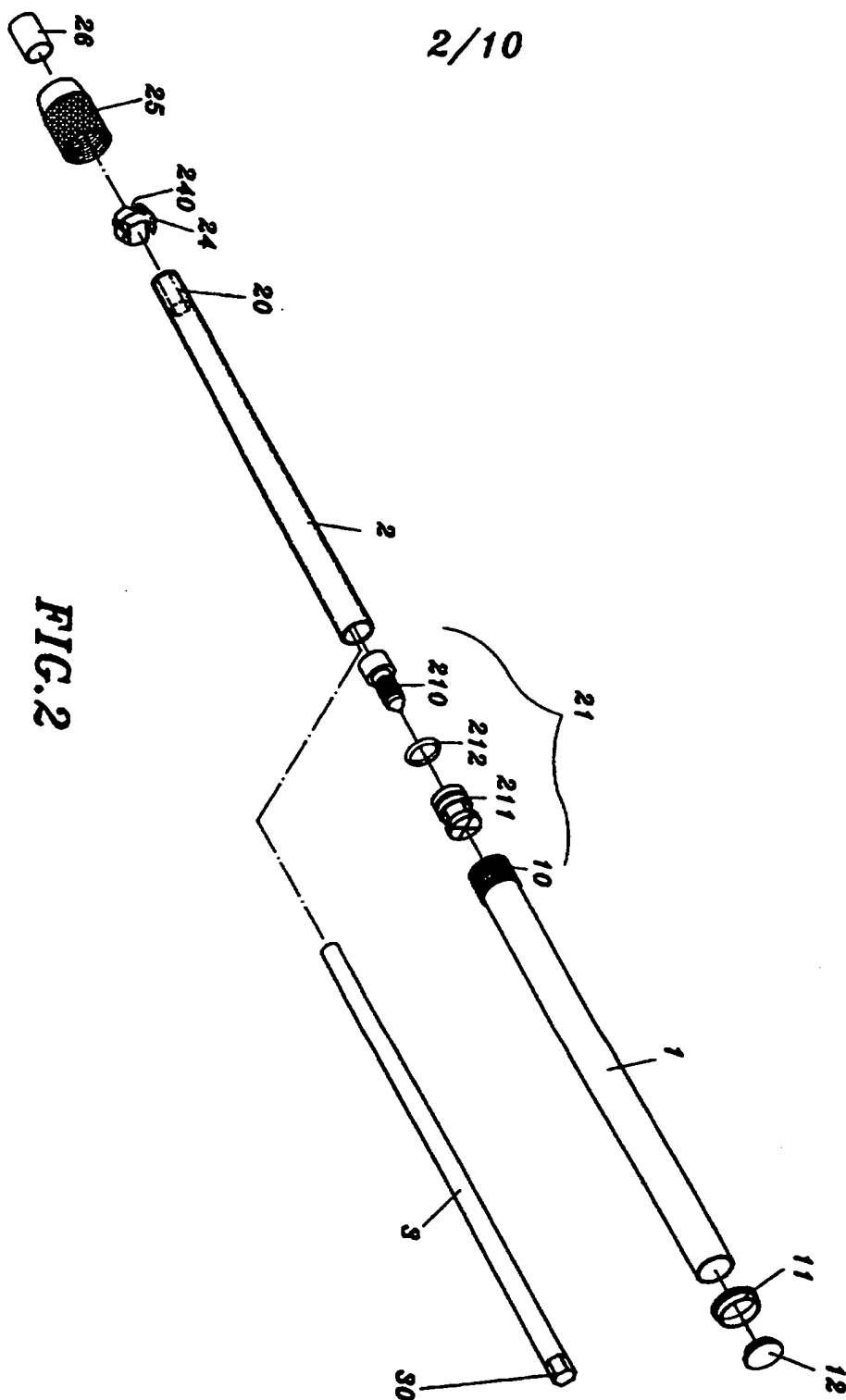


FIG. 1



3/10

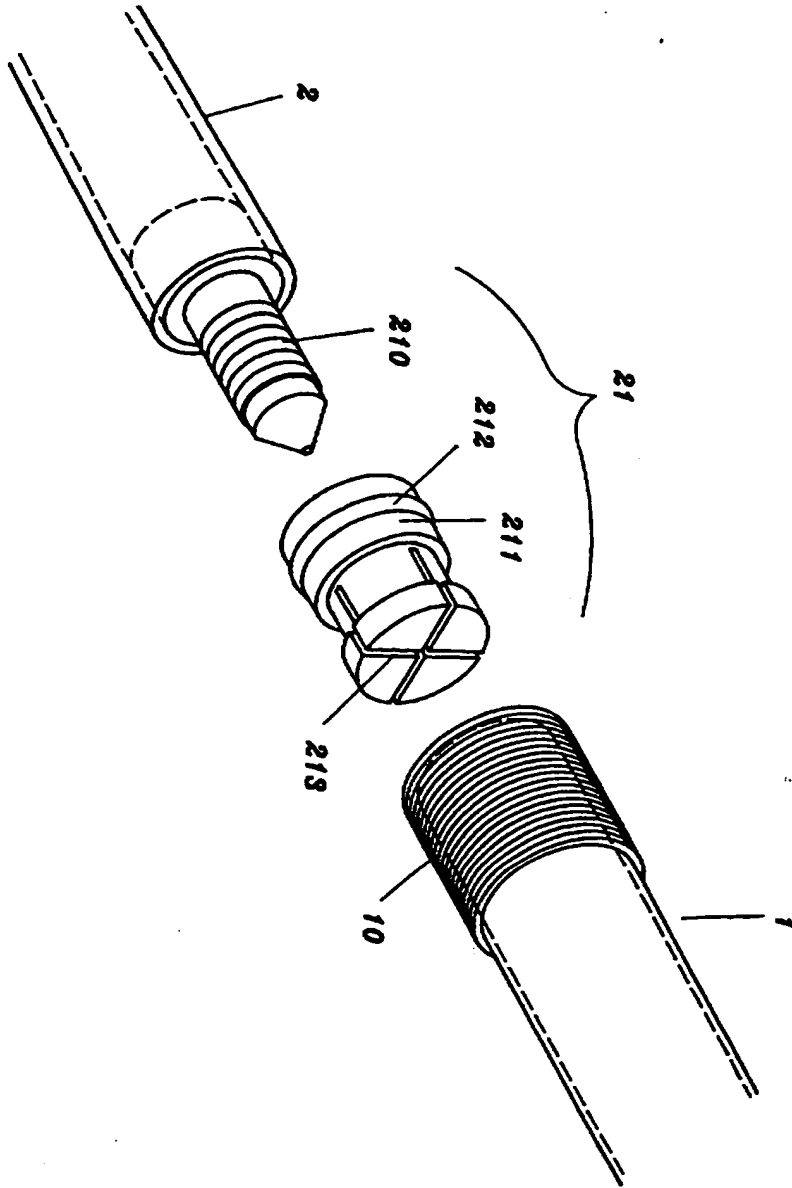


FIG. 3

4/10

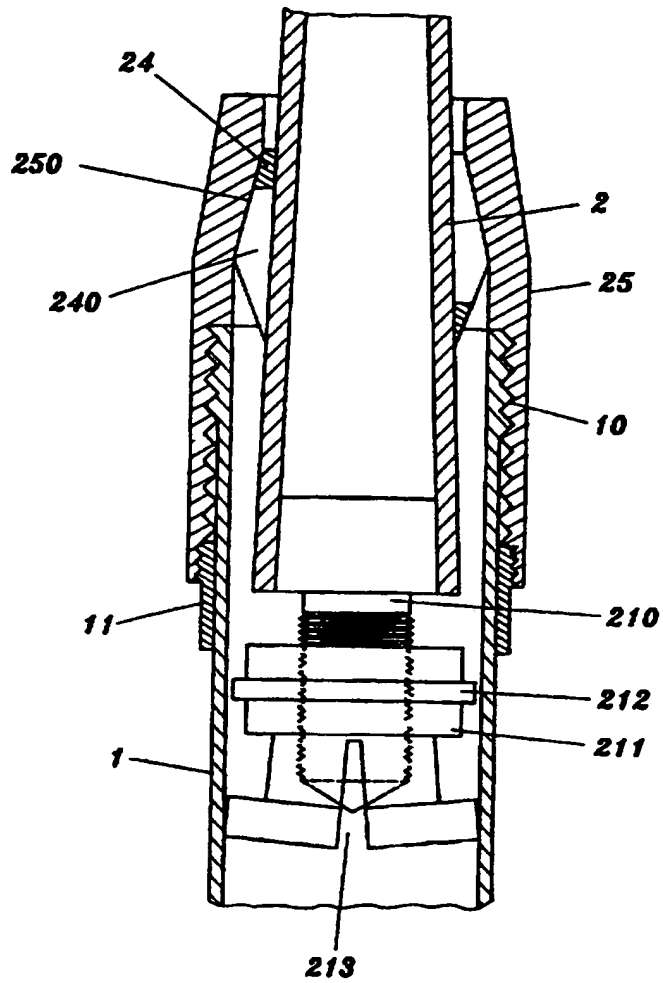


FIG. 4

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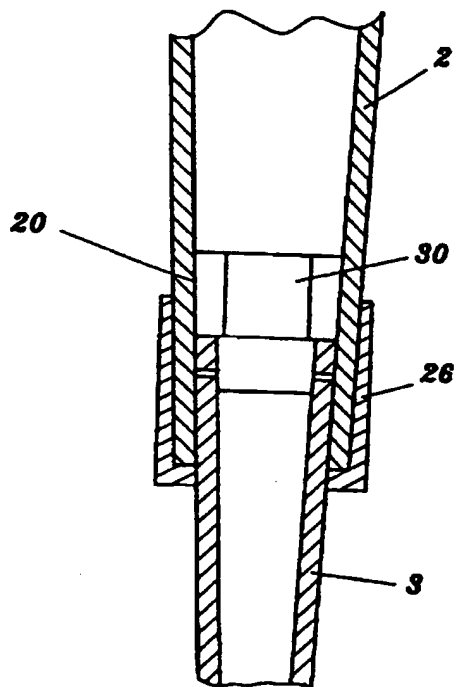


FIG.5

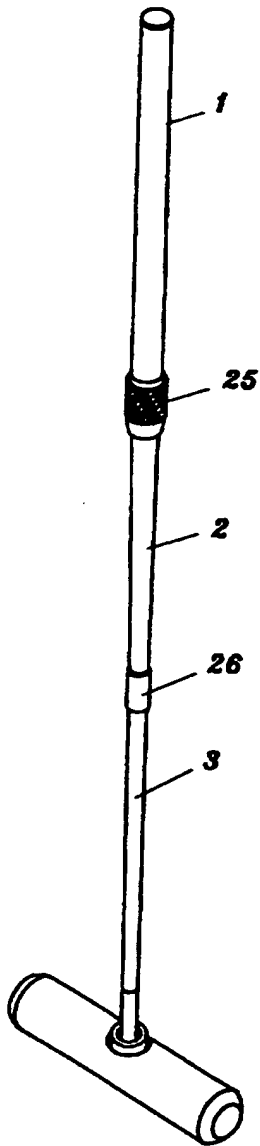


FIG. 6

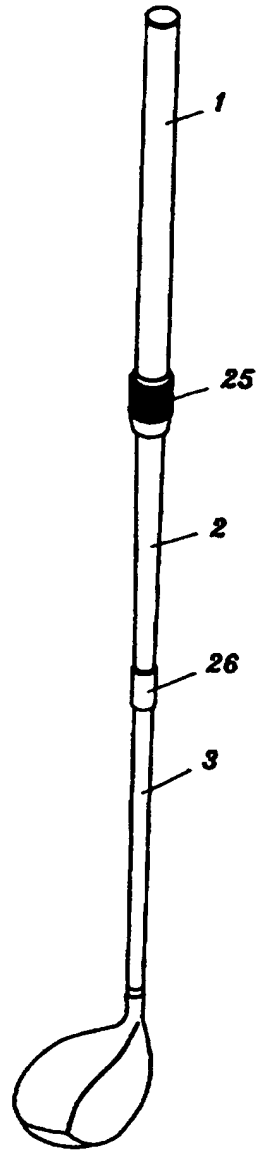
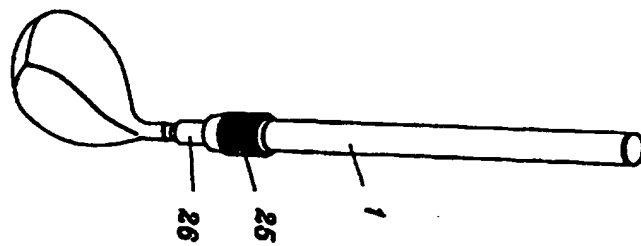


FIG. 7

FIG. 8



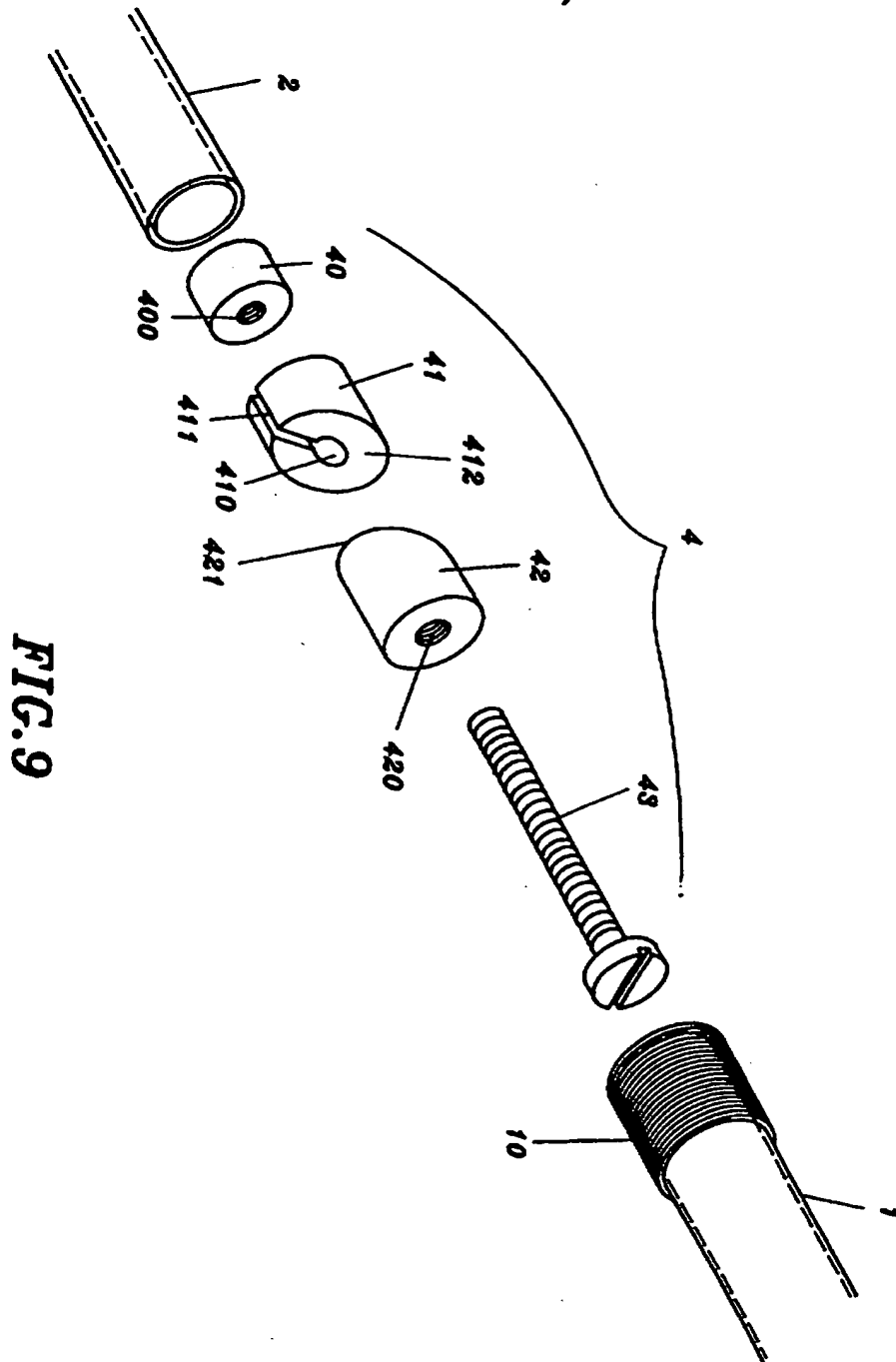


FIG. 9

9/10

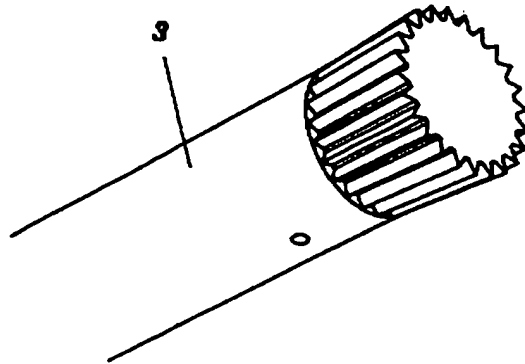


FIG. 10

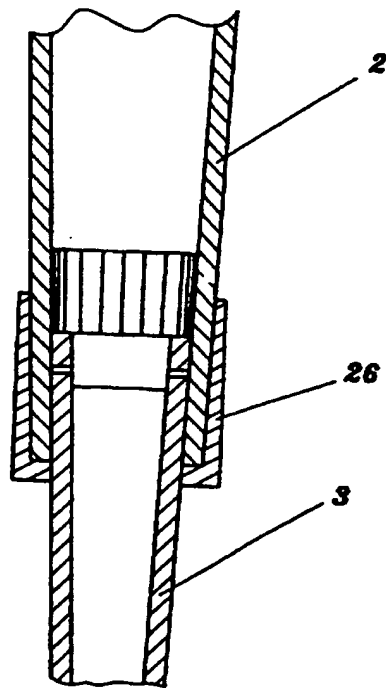


FIG. 11

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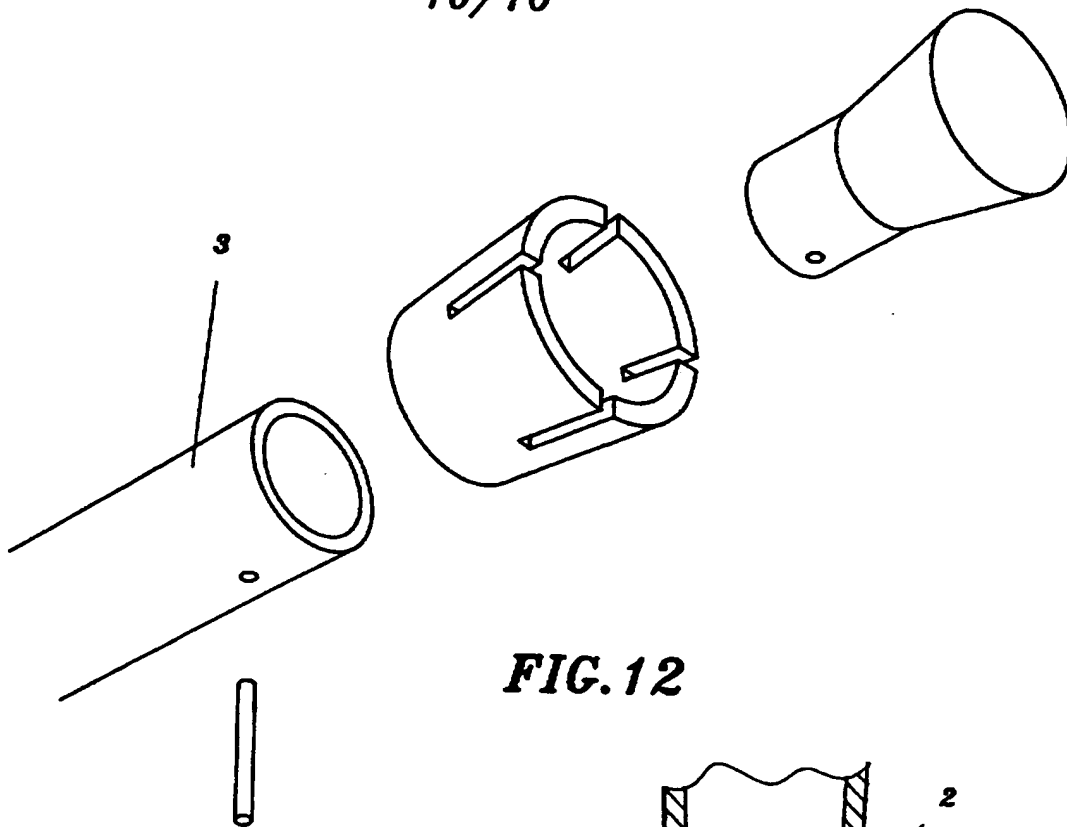


FIG.12

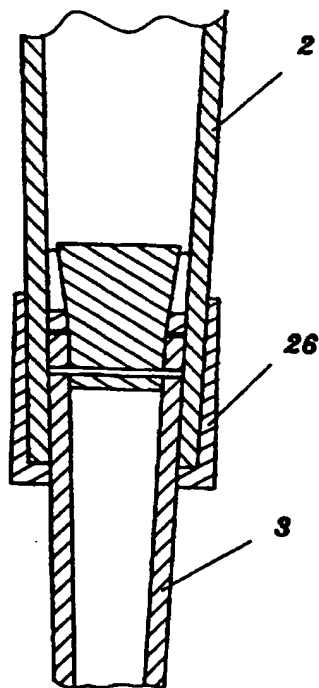


FIG.13